IN THE CLAIMS

We Claim:

1. A brass alloy, consisting, by weight, essentially of:

from 2% to the maximum that maintains an alpha brass microstructure of zinc;

from 0.2% to 2% nickel;

from 0.15% to 1% tin;

from 0.03% to 0.35% phosphorous; and

the balance copper and inevitable impurities.

2. The brass alloy of claim 1 wherein said nickel and said phosphorous are present in an amount effective to provide a nickel:phosphorous weight ratio of between 3.5:1 and 7.5:1.

3. The brass alloy of claim 2 wherein said nickel and said phosphorous are present in an amount effective to provide a nickel:phosphorous weight ratio of about 5:1.

4. The brass alloy of claim 2 further including between 0.07% and 0.12% of iron.

5. The brass alloy of claim 2 further including from about 2 ppm to about 50 ppm of oxygen, sulfur, carbon or a mixture thereof.

6. The copper alloy of claim 2 wherein said zinc is present in an amount of from 8% to 25%.

7. The copper alloy of claim 3 wherein said nickel is present in an amount of from 0.3% to 1%.

8. The copper alloy of claim 7 wherein said tin is present in an amount of from 0.2% to 0.7%.

9. The copper alloy of claim 8 wherein said phosphorous is present in an amount of from 0.05% to 0.18%.

10. The copper alloy of claim 6 wherein said tin is present in an amount of from 0.2% to 0.7%.

11. The copper alloy of claim 10 wherein said zinc content is about 10.2%, said nickel content is about 0.50%, said tin content is about 0.30% and said phosphorous content is about 0.10%.

12. The copper alloy of claim 10 wherein said zinc content is about 19.8%, said nickel content is about 0.50%, said tin content is about 0.51% and said phosphorous content is about 0.11%.

13. An electrical connector having a conductivity in excess of 25% IACS and a resistance to stress relaxation at a 125°C operating temperature formed from the alloy of claim 6.

14. An electrical connector having an electrical conductivity in excess of 25% IACS and a resistance to stress relaxation at a 125°C operating temperature formed from the alloy of claim 8.

15. A process for the manufacture of a copper alloy strip having an electrical conductivity in excess of 20% IACS and resistance to stress relaxation at a 125°C operating temperature, comprising the steps of:

casting a copper alloy consisting essentially of 8%-25% zinc, 0.3%-1% nickel, 0.2%-0.7% tin, 0.05%-0.18% phosphorous and the balance copper an inevitable impurities;

hot rolling said copper alloy to form said copper alloy strip at a temperature in excess of 650°C for a thickness reduction of between 50% and 99%, in thickness;

repeating the sequence of cold rolling followed by annealing multiple times wherein each cold rolling step provides said copper alloy strip with a thickness reduction of between 30% and 95%, in thickness, and each sequential annealing temperature is between 400°C and 600°C;

cold rolling said copper alloy strip to final strip thickness by a reduction of between 30% and 70%, by thickness; and

relief annealing said copper alloy strip at a temperature of between 200°C and 350°C.

16. The process of claim 15 wherein each successive one of said sequential annealing temperatures is less than an immediately preceding one of said sequential annealing temperatures.

17. The process of claim 16 wherein said step of cold rolling to final thickness includes reducing the thickness of said copper alloy strip to within the range of 0.005 inch and 0.02 inch.

18. The process of claim 17 including the further step of forming said copper alloy strip at final gauge into an electrical conductor.